

Data Management for NSF EHR Directorate Proposals and Awards

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PURPOSE

This guidance provides assistance to investigators as they develop a data management plan (DMP) for proposals submitted to the EHR directorate.

NSF is aware of the need to provide flexibility in assessment of data management plans. In developing a plan, researchers may wish to consult with university or institutional officials, professional associations or other resources for guidance.

For appropriate guidance in preparing proposals, refer to the NSF Proposal and Award Policies and Procedures Guide (PAPPG), especially NSF policy on dissemination and sharing of research results. Also review the current public access plan regarding access to the results of NSF funded research (e.g., NSF 15-52).

DMPs will be reviewed by panelists and program directors, and should be written with sufficient clarity and detail to support proposal processing and the merit review process. Generic DMPs should be avoided.

Each DMP should describe the particular data, metadata, samples, software, curricula, documentation, publications, and other materials generated in the course of the proposed research.

DMPs should reflect best practices and standards for the proposed research and types of data being generated, whether experimental, computational, text-based, media, or physical materials.

Even if no data are expected to be produced, a DMP response is required, which can simply state that no data will be produced in the project, along with an appropriate justification.

Please contact an EHR Program Officer if you have any questions related to DMPs in general, or a DMP in response to a particular program or solicitation.

BACKGROUND

The National Science Foundation (NSF) requires all proposals submitted or due on or after January 18, 2011 to include a supplementary document labeled "Data Management Plan," which described how the proposal would conform to NSF policy on the dissemination and sharing of research results.

The NSF Proposal and Award Policies and Procedures Guide (PAPPG) contains guidance on current NSF policy requirements in two specific sections:

- (1) Chapter II.C.2.j: describes the requirements of the data management plans that investigators must include as a supplementary document;
- (2) Chapter XI.D.4: describes NSF's policy on data management and dissemination of the products of research.

The DMP should be no more than two pages and will not count against the 15-page limit for proposals. The plan should address two main questions:

What data and products are to be generated by your project?

What is your plan for managing these data or products?

EHR PRINCIPLES ON DATA MANAGEMENT PLANS

These principles reinforce EHR's goals for data management plans (DMPs) and are not meant to supersede NSF policies or regulations.

- (1) As appropriate, data management plans should be considered in the overall context concerning human subjects' protections (i.e., IRB criteria) and other ethical requirements.
- (2) EHR proposals often involve the collaboration of investigators and participants from many communities. Therefore, DMPs submitted to EHR should be appropriate to the data being generated and reflect the procedures, standards and best practices developed by the communities of practice in the area of research being proposed.
- (3) Access and sharing of data and products should reflect appropriate protections for IRB, privacy, confidentiality, data security, and intellectual property.
- (4) Data shared with the research community support NSF's goals for research transparency. Thus, DMP review is an important consideration for assessing both the intellectual merit and the broader impacts of EHR proposals.
- (5) EHR expects its awardees to describe how data and related materials are generated to allow others to reproduce the research study. Further the DMP should support the PI's ability to share data, products and methods in such a way that others can understand, validate, and replicate research findings.
- (6) Unless otherwise restricted by policy or regulation, access to data and products should be provided, and data and the products of research shared, as soon as is reasonably possible.
- (7) Any guidelines for re-use, re-distribution, or production of derivatives should be specified.

EHR GUIDANCE ON DATA MANAGEMENT PLANS

In developing DMPs, the following guidance is provided. Please contact an EHR Program Officer if you have any questions related to DMPs in general, or in the context of a particular program or solicitation.

“Access to data” refers to data made generally available without explicit request by a third party (e.g., data or material made available on a public website).

“Data sharing” refers to the release of data or material in response to a specific request from a third party.

A DMP should:

- Specify the roles and responsibilities of all parties with respect to the DMP activities.
- Specify the types of data or products that will be generated (e.g., test scores, survey responses, images, data tables, video or audio data, software, curricular, or exhibit materials).
- Specify how these data or products are to be stored, preserved, and shared.
- Specify any restrictions on data or product storage, access, preservation or sharing.
- Specify what data formats will be used (e.g., XML files, websites, image files, data tables, software code, text documents, or physical materials).
- Specify how long access to data and products, and sharing of data or products, will be maintained after the life of the project, and how any associated costs will be covered and by whom.
- If data or products are to be preserved by a third party, please refer to their preservation plans if available.

Budget.

Anticipated costs for data or material management should be listed in the proposal Budget and explained in the Budget Justification.

Period of data retention.

The data management plan should clearly state how and when data and other materials will be released, and how long they will be stored or archived.

Data formats and dissemination.

The DMP should describe data formats, media, and dissemination approaches that will be used to make data and metadata available to others. Policies for public access and sharing should be described, including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements. Research centers and major partnerships with industry or other user communities must also address how data are to be shared and managed with partners, center members, and other major stakeholders.

Data storage and preservation of access.

As appropriate, the DMP should describe physical and cyber resources and facilities that will be used for the effective preservation and storage of research data. These can include third party facilities and repositories.

Additional possible data management requirements.

More stringent data management requirements may be specified in particular NSF/EHR solicitations. Additional requirements will be specified in the program solicitation and award conditions. Principal Investigators to be supported by such programs must discuss how they will meet these additional requirements in their Data Management Plans. Local institutional policies and best practices may also apply, and these should be considered in developing the DMP.

POST-AWARD MONITORING

After an award is made, data management plans will be monitored primarily through the normal Annual and Final Report process and through evaluation of subsequent proposals. Investigators are encouraged to describe progress towards data management goals in annual, final, and project outcome reports. If revisions to data management plans are necessary, these revisions should be discussed with the cognizant program officer.

Subsequent proposals.

Data management activities must be reported in subsequent proposals by the PI and Co-PIs under “Results of prior NSF support.” For guidance, review the current version of the NSF Proposal and Award Policies and Procedures Guide.

Some Resources in Developing DMPs

National Science Foundation, Proposal and Award Policies and Procedures Guide, https://www.nsf.gov/publications/pub_summ.jsp?ods_key=pappg.

NSF Public Access Guide, <https://www.nsf.gov/pubs/2015/nsf15052/nsf15052.pdf> and https://www.research.gov/research-portal/appmanager/base/desktop?nfpb=true&pageLabel=research_node_display&nodePath=/researchGov/Service/Desktop/AboutPublicAccess.html.

Public Access to NSF-Funded Research Data for the Social, Behavioral, and Economic Sciences, Workshop Report, May 17, 2016.

https://www.nsf.gov/sbe/reports/Public_Access_NSF_Workshop_Report_Final_Briefs.pdf.

American Psychological Association (apa.org).

American Educational Research Association (aera.net).

Association for Psychological Science (psychologicalscience.org).

US Department of Education (ed.gov).

Institute of Education Sciences (ies.ed.gov).

National Center for Education Statistics (nces.ed.gov).